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Does managerial ability influence the quality of financial reporting?

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ABSTRACT

The purpose of this paper is to study the influence of managerial ability on the quality of their financial reporting. Using a large bank sample from nine different countries and for the time period 2004–2010, we expect that bank earnings quality and accounting conservatism increase with more able managers that disclose more accurate earnings and who report higher information about banks' future earnings and cash flows.

The results confirm that managerial abilities play a significant role in the quality of financial reporting in banks, and that capable bank managers are less likely to manage earnings opportunistically. This study is timely and relevant given the recent emphasis on earnings quality of banks over the last few years, and the criticisms of managerial abilities after the financial crisis. The evidence from this study can help standard-setters and regulators to better understand the business practices and accounting behavior of banks in the light of managerial abilities.

1. Introduction

Do we know the factors that affect quality reporting in banks? Previous literature on financial reporting quality has mainly focused on the influence of governance characteristics of non-financial firms (Beekes, Pope, & Young, 2004; García Lara, García Osma, & Penalva, 2009). Several other studies have shown the association between financial reporting quality of non-financial firms and several management variables, such as CEO attributes (Francis, Huang, Rajgopal, & Zang, 2008; Koh, 2011), executive overconfidence (Schrand and Zechman 2009), and financial expertise (Matsunaga & Yeung, 2008). According to these studies, managers play a key role in the financial reporting process and exert a major influence on earnings through their operating decisions (Choi, Han, Jung, & Kang, 2015). These results are supported by the upper echelons theory, where managers are not effectively interchangeable, and idiosyncratic differences in personal values and cognitive styles can lead them to make different choices, particularly in complex situations (Bamber, Jiang, & Wang, 2010). These managerial abilities (MAs) are even more relevant in the bank industry due to the large informational asymmetries, opaqueness, and complexities of this sector (Levine, 2004).

Despite the relevance of managerial ability, most of the previous literature has largely ignored the consequences of managerial skills on financial firms. However, banks have larger informational asymmetries and a different capital structure than non-financial firms. Managers in banks face superior complexity arising from many types of risks – credit risk, interest rate risk, prepayment risk, exchange rate risk, liquidity risk, among others (Craig Nichols, Wahlen, & Wieland, 2009). According to Bamber et al. (2010), in complex and ambiguous situations managers operate within the bounds of rationality, and within these bounds their choices can be influenced by their idiosyncratic experiences and values. Therefore, in order to prevent depositors losing confidence in banks and to avoid reputational losses, able managers may have a strong incentive to avoid their earnings becoming negative, which affects their accounting choices. In this regard, and according to Shen and Chih (2005), bank insiders have a high incentive to hide asset substitution behavior through earnings management, because bank assets present bankers with ample opportunities for risk or asset substitution, and their high leverage inclines them to do so. Similarly, Ahmed and Duellman (2013) found that overconfident managers overestimate future returns, leading to a delay in recognition of losses and therefore a reduction in firm-accounting conservatism. On the other hand, able managers can develop specific managerial styles, associated with their personal and educational backgrounds, which promote firm's voluntary disclosure and

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certain conservative characteristics that affect the quality of their reporting (Bamber et al., 2010). These higher-ability managers may also reduce the information asymmetry gap with the markets under financial crisis (Andreou, Philip, & Robejsek, 2015), aiming for higher quality of financial reporting. The more specific the ability entrenched in managers, the more likely it is to be poorly transferrable to other firms and particularly hard for rivals to imitate, so making it a potent source of superior performance (Hatch & Dyer, 2004). Thus, the specific accounting tools that managers may choose to achieve financial reporting goals, such as discretionary accruals or earnings smoothing arising from factors such as their dispositions, personal situations, or previous experiences, can have a positive or a negative effect on accounting choices and hence influence bank financial reporting quality (Ge, Matsumoto, & Zhang, 2011).

Taking into account the relevance of managerial idiosyncrasies and noting the problems of previous measures used to capture the effect of managerial ability (e.g., tenure or education), Demerjian, Lev, and McVay (2012) constructed a broad managerial ability score that outperforms previous ability measures by estimating how efficiently managers use their firms' resources, relative to their industry peers. This measure focuses on the overall managerial effect rather than on specific managerial characteristics (e.g., reputation). Since the publication of their study, some papers have emerged to use this score and investigate the influence of the managerial team ability on several corporate outcomes such as dividend policy (Jiraporn, Leelalai, & Tong, 2015), liquidity creation, and risk taking (Andreou et al., 2015) or the quality of the judgments and estimates used to form earnings in non-financial firms (Demerjian, Lev, Lewis, & McVay, 2013). Given the specificity of financial firms, we cannot infer from these studies whether managerial abilities affect financial reporting quality in banks. Moreover, given the importance to national and global economies of banks, intense information asymmetries, and the recent concern about the quality of reported earnings after the financial crisis, a study of managerial influences on financial reporting quality in the banking industry is clearly needed.

Our main objective is to study the influence of managerial ability on the quality of bank financial reporting. Using a large sample of banks from nine different countries, we expect that bank earnings quality increases with able managers that report less noisy or more accurate earnings, and who take reporting actions that reveal information about banks' future earnings and cash flows. We also hypothesize that more capable bank managers are less likely to withhold information on expected losses, leading to more conservative financial reporting. We build our hypotheses under the upper echelons and the resource-based view theories which suggest that managers' attributes influence how they measure and interpret their situations and therefore have consequences on their decisions (Hambrick, 2007; Holcomb, Holmes, & Connely, 2009). We follow Demerjian et al. (2012) measure as a proxy of managerial ability adjusted to be bank-specific environment and use earnings quality and accounting conservatism as financial reporting quality proxies. Our measure of earnings quality is based on earnings persistence as well as the ability of banks' current earnings to predict their future cash flow (Kanagaretnam, Lim, & Lobo, 2014). Models for testing accounting conservatism are based on aggregate earnings, following Ball and Shivakumar (2005) and Kanagaretnam et al. (2014). Our evidence indicates that after controlling for the bank- and country-specific institutional factors, managerial abilities are important determinants of earnings quality and accounting conservatism in banks. We obtain similar evidence by using alternative measures, such as loan loss provisions (LLPs) and loan loss allowance (LLA).

This study makes several contributions to the literature. First, it extends previous research on managerial ability (Demerjian et al., 2013) by noting that more able managers in banks contribute to better earnings quality and higher conservatism. Second, this is the first empirical study to investigate this association in the international financial industry, which contributes to the calls for further analysis of how country-level institutional systems influence a variety of interest group-level phenomena. The selection of the sample allows us to work with a wide representation of different investor protection levels and bank regulation systems, and broadens our analysis to a wider basis than the Anglo-Saxon area to which most previous research is limited. Therefore, the international sample led us to understand to what extent the consequences of the ability of managers in banks can be generalized in a framework where there are differences in legal tradition, legal enforcement, and bank regulation.

Additionally, focusing on a relatively homogeneous industry facilitates determinants of cross-sectional differences in properties of earnings and enhances the reliability of the inferences from the empirical analyses. Studies on financial firms are also interesting due to the high levels of performance obtained by financial institutions over the last few years, and the consequent opportunities and incentives for managers to earn quasi-rents by distorting earnings. Third, this study contributes to the literature on earnings quality and accounting conservatism, which is mainly focused on the effects of board and firm characteristics (Beekes et al., 2004; Ahmed & Duellman, 2007; García Lara et al., 2009). We extend this line of research by shedding light on managers' abilities to protect shareholder interests and thereby increase accounting conservatism and earnings quality in banks. Thus, this research extends the literature by focusing not on any single aspect of managerial characteristics (e.g., expertise or reputation) but also on the manager's effect in general. Fourth, the study adds to the literature on accounting conservatism in banks (Gebhardt & Novotny-Farkas, 2011; Leventis, Dimitropoulos, & Owusu-Ansah, 2013). While these studies investigate a single-country setting, our international setting allows us to explore the accounting quality effect of managerial abilities with institutional factors. Finally, the paper also contributes to the ethics literature by highlighting the benefits of managerial abilities in upholding the quality of financial reporting.

2. Background and hypotheses

The literature on economics and finance has recently started to explore whether individual managers impose an idiosyncratic influence on corporate decisions (Bamber et al., 2010). One of the first works in this area was by Bertrand and Schoar (2003), who found that managers develop unique individual-specific styles in operational and financing decisions. After this paper, Jensen and Zajac (2004) confirmed that managers develop strategies in line with their own functional experience, and Malmendier and Nagel (2011) reported that managers who experienced lower stock returns during their investing lives were more conservative, so confirming the effect of manager age on corporate decisions. In the same line, Ge et al. (2011) found that accounting choices are influenced by CFOs' individual characteristics arising from their personal situations and experiences.

One of the theories that stresses the importance of managers is the resource-based view theory (Holcomb et al., 2009). According to this theory, managers' ability to effectively use firm resources is itself a valuable resource with potential for generating continual

competitive advantages for a firm. In this sense, managers accumulate knowledge through formal education in a particular field and through "learning by doing," and they rely on these experiences when making decisions (Collins et al., 2009). Similarly, the upper echelons theory suggests that managers' individual characteristics affect how they measure or interpret situations of firms and therefore have an impact on their corporate decisions and performance (Ge et al., 2011; Hambrick, 2007).

Supporting these theories, scholars link managerial ability directly to many performance outcomes, such as shareholders returns (Hayes & Schaefer, 1999), firm innovation and growth (Holbrook, Cohen, Hounshell, & Klepper, 2000) or internationalization (Hitt, Bierman, Uhlenbruck, & Shimizu, 2006). According to Ge et al. (2011), these studies do not necessarily imply that a manager's style will significantly influence firm's accounting choices. Nevertheless, according to the above theories, managerial abilities may play an important role in determining the quality of financial reporting, since they manage the implementation of accounting principles and the preparation of financial statements. Managers can also influence financial reporting quality by their attitude toward internal controls and through their role as channels of information to directors, other managers, and auditors (Aier, Comprix, Gunlock, & Lee, 2005).

The scarce evidence regarding the influence of managerial abilities on the quality of financial reporting is not conclusive. Some of the papers consider earnings quality, accruals, or accounting restatements as proxies for financial reporting quality and study the effects of managerial ability. For instance, Demerjian et al. (2013) noted that a more able management is more knowledgeable about business conditions, affecting the firm by having fewer subsequent restatements, lower errors in bad debt provision, persistently higher earnings and accruals, and higher-quality accrual estimations. Choi et al. (2015) also note that a CEO with superior operating ability will implement operating decisions (such as revenue-increasing and cost-cutting strategies, capital and labor investment, etc.) more effectively. Previously, Aier et al. (2005) found that CFOs with greater expertise have fewer restatements, and Leverty and Grace (2012) noted that more efficient CEOs reduced the likelihood of their firms becoming insolvent. On the other hand, other authors, such as Francis et al. (2008) reported a negative relationship between CEO reputation and earnings quality. They argue that their results are in agreement with the rent extraction perspective, which states that reputed CEOs overestimate their personal career improvement and take actions that may deteriorate discretionary earnings quality.

Moving on to the financial industries, bank managers have an ever higher incentive to prevent their earnings from being negative in order to keep depositors from losing confidence. Thus, some reasons that may explain manager discretion in banks are signaling private information, reducing perceived risk, improving external financing, benchmark beating, or income-increasing accruals. In this line, Andreou et al. (2015) showed that more able US managers leverage their bank's assets to create greater liquidity, aiming for higher performance.

Another measure usually considered as a proxy of financial reporting quality is accounting conservatism. Prior academic evidence suggests that banks prefer accounting conservatism to reduce the risk that borrowers' financial positions are overstated and of agency conflicts between bondholders and shareholders (Choi, 2007). Conservatism is also desirable to banks because a higher degree of conservatism gives a greater margin of safety for the assets that serve as loan security (SFACnº2). In this sense, the literature has found that managers promoted from legal backgrounds tend to lower expectations, reflecting greater sensitivity to litigation risk, while managers coming from accounting and finance develop more precise reporting styles that are conservative in not overestimating upcoming earnings (Bamber et al., 2010). In this line, Matsunaga and Yeung (2008) provided evidence that the quality of a firm's financial disclosures depends on the CEO's financial experience and Koh (2011) also showed that reputable CEOs with high-profile awards engage in more conservative accounting practices and are less likely to manage earnings opportunistically. Ge et al. (2011) also suggested that CFO-specific factors are a significant determinant of accounting choices and Ahmed and Duellman (2013) found evidence for a significant negative effect of CEO overconfidence on accounting conservatism. However, the specific effect that bank managerial abilities have on accounting conservatism has not been tested yet.

By using earnings quality and accounting conservatism as proxies of financial reporting quality, we expect that financial reporting quality rises as able managers report more accurate earnings or take disclosing actions that reveal information about banks' future income. Similarly, we expect that more capable managers will be more likely to follow a timely recognition of earnings decreases and to take longer to recognize earnings increases because these decisions directly affect profitability and capital ratios, which are measures used by regulators to identify troubled banks. Therefore, we pose the following hypothesis:

H1. Managerial ability is positively associated with financial reporting quality in banks.

3. Methodology

3.1. Population and sample for the analysis

The sample for analysis is composed of 877 observations, corresponding to 159 banks from nine countries, for the time periods 2004–2010. Economic and financial data were obtained from the Compustat database, and corporate governance data were obtained from the EIRIS database and the Spencer & Stuart Board Index.

Initially, we accessed the economic and financial information of 524 listed banks through the Compustat database. Then, we lost 344 sample banks because their information on board composition was not found in the Spencer & Stuart Board Index data. Finally, we lost 21 more sample banks, whose information on their ethical commitment was not available in the EIRIS database. After this process, we obtained a sample of 159 financial entities from nine countries – Canada, France, Germany, Italy, the Netherlands, Spain, Sweden, the UK, and the USA – which allows us to take into account different banking sector regulations related to national characteristics. For instance, The Netherlands is the country with the highest industry concentration and the largest bank size. In relation to restrictiveness on bank activity and ownership, Italy and Sweden are at the top of the ranking. The USA and the UK present the highest supervisory power and France has limits per person and by account in the deposit insurance design (see Table 1, Annex 2).

The time period considered is 2004–2010, although some firms are missing information for some years, leading to an unbalanced panel database of 877 observations.

Table 1 shows the sample distribution by year and country. As we can see, the highest percentages refer to the years 2004–2007 (more than 65% of observations). In relation to geographic diversity, observations are not distributed homogeneously; 47.21% of companies are from the USA and 21.21% are from the UK. The remaining observations are uniformly distributed among the remaining

Table 1
Sample distribution by year and country.

Sample distribution by year							
TOTAL	2004	2005	2006	2007	2008	2009	2010
877	87	97	117	137	154	148	137
100%	9.92%	11.06%	13.34%	15.62%	17.56%	16.88%	15.62%

Sample distribution by country									
TOTAL	Canada	France	Germany	Italy	The Netherlands	Spain	Sweden	UK	USA
877	67	19	23	66	25	56	21	186	414
100%	7.64%	2.17%	2.62%	7.53%	2.85%	6.39%	2.39%	21.21%	47.21%

countries and years.

3.2. Managerial ability

Until Demerjian et al. (2012), managerial ability has been proxied by CEO turnover, CEO press visibility, or by firm performance. According to Andreou et al. (2015), focusing on only the CEO ability ignores that it is the top management team, not only the CEO, that drives firm outcomes and, when firm performance is considered as a whole, subsumes influences due to management and to the firm itself, such as economies of scale, functional organizational structures, etc.

The contribution of Demerjian et al. (2012) is a managerial ability measure by calculating a Data Envelopment Analysis (DEA) score which generates an estimate of how efficiently managers use their firms' resources. The DEA score reveals that high-quality managers will generate a higher rate of output from given inputs than lower-quality managers, who obtain the opposite results. More specifically, they estimated firm efficiency (DEA score) within industries by comparing the sales generated by each firm (the output), conditional on the following inputs used by the firm: Cost of Goods Sold, Selling and Administrative Expenses, Net PP&E, Net Operating Leases, Net Research and Development, Purchased Goodwill, and Other Intangible Assets. Later, they regressed the DEA score to obtain the residuals, a value that identifies the efficiency attributable to the manager. Purging the DEA score of key firm-specific characteristics is expected to aid or hinder management's efforts, including firm size, market share, positive-free cash flow, and firm age, which aid management, and complex multi-segment and international operations, which challenge management.

A cursory review of the existing bibliography reveals that a wide range of statistical techniques has been used by the different researchers to estimate firm efficiency. In general, frontier and non-frontier techniques are usually distinguished, i.e., techniques leading to estimations of efficiency in relative or absolute terms, respectively. The approach used for its empirical calculation may be parametric or non-parametric and, most notably, DEA and stochastic frontier analysis (SFA) have been commonly used in order to calculate efficiency. For example, Andreou et al. (2015) computed bank profit efficiency, instead of the revenue efficiency, using SFA because this technique does not require the data to be observed without errors and it does postulate a functional form that underlies the production process. Concretely, they employed the widely used Translog functional form with linear homogeneity in prices imposed.

Their SFA approach presents several disadvantages, especially those relating to the fact that it is only possible to consider a single output and that the translog functional form can suffer from curvature violations. By contrast, **t**he use of DEA techniques has several advantages relating to its ability to accommodate a multiplicity of inputs and outputs allowing the overall analysis of each firm; it takes into consideration returns to scale in calculating efficiency, allowing for the concept of increasing or decreasing efficiency based on size and output levels; not requiring prior definition of a production function that requires the creation of a mythical unit with which to perform the comparison (Shang & Sueyoshi, 1995, p. 299); and not requiring the assumption of fulfillment of statistical hypotheses such as normality, multicollinearity, or heteroskedasticity. From the practical point of view, Andreou et al. (2015) examined results obtained by way of DEA in the robustness checks of their SFA approach and they found that their conclusions are qualitatively unaffected. Moreover, Demerjian et al. (2012) document a validation of DEA efficiency measure, showed a strong relationship between efficiency and managers' ability and its consequences. They find that efficiency is directly related to executive compensation, firm stock price performance, and stock price reactions to managerial turnovers.

In this respect, we define managerial ability by a two-stage DEA approach. First, we use DEA to create an efficient boundary that determines the relative efficiency of the banks by measuring the amount and mix of resources (inputs) used to generate revenues (outputs). Those banks operating on the boundary are assigned a score of one and represent the most relative efficient units. The lower the firm's score, the further it is from the boundary.

Demerjian et al. (2012) measure of efficiency applies to all publicly traded firms, but according to Leverty and Grace (2012), it is necessary to use a specific measure of firm efficiency for a single industry. Focusing on bank characteristics makes identifying managerial skill or talent easier, because we can control for firm and industry characteristics. It also allows us to better represent the banks' action in which they take deposits from savers and pay interest on some of these accounts.

In order to estimate the efficiency index, we considered the necessary input allocation and product mix decisions needed to attract deposits and make loans that obtain interest income. Outputs identify the monetary volume of deposits, loans, and other investments, as well as the interest income generated by loans and other investment (Deposits, Loans, Investment and Income). In the case of inputs, we first consider acquired assets, both tangible and intangible. The first acquired asset is represented by the net property plant and equipment value reported on the balance sheet (PPE). The second is measured by the net value of intangible assets that includes all intangible inversion, especially goodwill for those banks that have acquired other financial entities (Int). We also incorporate too the labor costs so as to represent the higher importance of personnel in financial industry (Labor) and the interest expenses that banks paid for deposits (IntExp). In addition, we included the operating rental expense in order to incorporate those bank offices that are excluded as assets but which contribute

in generating revenues (RentalExp). The use of this revenue approach is better than profit or cost efficiency due to the difficulty in collecting reliable and transparent information for output and input prices.

DEA is a linear programming-based methodology for evaluating the efficiency of each bank relative to an empirical production possibility frontier determined by all banks under appropriate assumptions regarding returns to scale and orientation. More concretely, the behavior of each bank observed is optimized, thus determining the efficient production frontier by means of linear segments based on the Decision-Making Units (DMUs) that operate with the best practices, which correspond to the set of units considered efficient in Pareto's terms. Therefore, the only requirement established is that each DMU should belong to the frontier envelopment.

More concretely, DEA maximization uses all DMUs in the group and determines the weights that maximize Equation (1) for each DMU relative to other DMUs in the group. For more details, see Annex 1.

$$\max\theta = \frac{u1Deposits + u2Loans + u3Investment + u4IntInco}{v1PPE + v2\ Int + v3Labor + v4IntExp + v5RentalExp} \quad (1)$$

Table 2 presents the mean values of the DEA score for each year and country, as well as the number of efficient banks in absolute and relative terms. It is possible to observe that efficiency is relatively stable in all periods at around 75%. By contrast, there is significant variance in the number of efficient banks. The higher number of efficient banks is located in the USA and the UK although the better financial industry in terms of DEA efficiency score is characteristic of France, the Netherlands, Sweden, and Germany.

Second, the efficiency index generated by the DEA estimation is attributable to both the firm and the manager. In order to isolate firm effects from managerial ability, we estimate a tobit regression model – equation (2) –in which DEA measure is determined by firm characteristics expected to aid – size, market share, free cash flow and firm age – or hinder management efforts – bank regulation environment. Following García-Meca, García-Sánchez, and Martínez-Ferrero (2015), we consider bank regulation environment (see Annex 2), because country regulations and supervisory practices in banks should incorporate terms to assess the efficacy of managers in a complementary or substitutive way.

Table 2
DEA score description.

Efficiency by year			
Year	Mean	Number of efficient banks	
		Absolute	Relative (%)
2004	0.73	15	17.24
2005	0.75	15	15.46
2006	0.76	22	18.80
2007	0.79	28	20.44
2008	0.76	32	20.78
2009	0.75	21	14.19
2010	0.77	23	16.79
Efficiency by country			
Country	Mean	Number of efficient banks	
		Absolute	Relative (%)
Canada	0.71	12	17.91%
France	0.86	6	31.58%
Germany	0.81	6	26.09%
Italy	0.65	8	12.12%
The Netherlands	0.82	3	12.00%
Spain	0.79	13	23.21%
Sweden	0.82	3	14.29%
UK	0.76	44	23.66%
USA	0.77	61	14.73%

Although it is recommendable to regress DEA score by country and include year effects, we have pooled all countries and years together to estimate our MA score. The small number of bank observations in several countries precludes the estimation of regressions of each country and obliges us to include both country- and year-fixed effects.

The residuals of equation (2) identify the level of efficiency attributable to the management team and this is our managerial ability measure (MA)

$$DEAScore_{it} = \beta_0 + \beta_1 Size_{it} + \beta_2 Market\_Share_{it} + \beta_3 Cash\_Flow_{it} + \beta_4 Age_{it} + \beta_5 BR_{it} + \gamma Country + Year + \varepsilon \quad (2)$$

3.3. Earnings quality model in banking industry

Statement of Financial Accounting Concepts No. 1 (SFAC No. 1) states that “higher quality earnings provide more information about the features of a firm's financial performance that are relevant to a specific decision made by a specific decision-maker.”

More specifically, we consider two related but distinct measures of earnings quality: earnings persistence and ability of current earnings to predict future cash flow.

3.3.1. Earnings persistence (EBT)

We selected earnings persistency because persistence depends both on the firm's fundamental performance and on the accounting measurement system, and firms with more persistent earnings have a more sustainable earnings stream that will make it a more useful input to equity valuation models. Hence, a more persistent earnings number is of higher quality than a less persistent earnings number. Consequently, more persistent earnings will yield a higher equity market valuation and, therefore, that increases in estimates of persistence will yield positive (contemporaneous) equity market returns like stronger stock price response (Dechow, Ge, & Schrand, 2010).

Following Kanagaretnam et al. (2014), we measure earnings persistence as the coefficient on current period earnings (defined as the net income before income taxes) in a regression of future earnings on current earnings. We estimate the following regression to investigate the effect of MA practices on this earnings quality measure:

$$EBTt + 1 = \varpi 0 + \varpi 1 EBTt + \varpi 2 MA + \varpi 3 MA * EBTt + \varpi 4 SIZE + \varpi 5 SIZE * EBTt \varpi 6 DEPOSIT + \varpi 7 LOANTYPE + \varpi 8 LOANGROWTH + {}_{\Omega} Fk + \gamma Ck + YEAR + \varepsilon i, k \quad (3)$$

A higher ϖ_1 implies a more persistent earnings stream. Dechow et al. (2010) intuitively argue that the logic behind earnings persistence being a quality metric is “if firm A has a more persistent earnings stream than firm B, in perpetuity, then (i) in firm A, current earnings is a more useful summary measure of future performance; and (ii) annuitizing current earnings in firm A will give smaller valuation errors than annuitizing current earnings in firm B. Thus higher earnings persistence is of higher quality when the earnings are also value-relevant.” In this line, we expect $\varpi 3$ to have the same positive effect.

Deposit is deposits scaled by the total assets at the beginning of the year. *Loantype* is a categorical variable to control for different loan categories. *LoanGrowth* is measured as the difference between a bank's loan growth rate and the median loan growth rate of all banks from the same country and year (Foos, Norden, & Weber, 2010). It compares a bank's loan growth rate with those of the other banks in our sample and takes into account the fact that high rates of loan growth do not necessarily reflect excessive risk-taking if all other banks have similarly high growth rates.

The model also controls for the effects of differences in size on the estimated auto-regressive relations, represented by the logarithm of the bank's total assets at book value. Additionally, equations include several firm- and country-level variables (Fk and Ck) to isolate the effect of MA practices from the effects of other firm and country characteristics, and year indicators (*YEAR*) to control for year-fixed effects. We estimate the model with robust standard errors clustered by country and bank to correct for heteroskedasticity and serial dependence (Petersen 2009).

In relation to firm characteristics (Fk), we have included a set of control variables whose effects have been found in previous studies to be related to board structure and this is represented by its independence diversity and expertise, determined by three variables: *Independent,* which represents the percentage of independent directors on the board of directors by company; *Diversity*, which identifies the percentage of women directors; and *Expertise*, which identifies the presence of financial-and-accounting-expertise directors on the audit committee.

Table 3 shows the descriptive statistics for firm characteristics. We can see that, on average, 68.8% of companies have a financial and accounting expert on their audit committees and around 1% of their directors are female. The mean presence of independent directors is 71%.

There is a strong correlation between these firm characteristics and with country-level variables. For this reason, and in order to avoid multicollinearity problems in our dependence model, these variables have been grouped using a factorial analysis. Results are shown in Table 4. The Kaiser–Meyer–Olkin (KMO) measure of sample suitability is 0.535, higher than 0.5, the minimum variable of suitability, and the Bartlett test of sphericity is significant at a 99% confidence level. This means that results of factorial analysis provide an adequate basis for empirical examination (Hair, Anderson, Tatham, & Black, 1998). Results show one factor, called *Board*, which defines the strength of the board of directors across banks. All of the variables have a positive effect on the factor.

The inclusion of a set of controls related specifically to the country (Ck) is due, in addition to the board of directors, to the fact that the legal and institutional environment and ownership structure can also serve as monitoring mechanisms to reduce agency conflicts and ease the governance problem between investors and managers (Mak & Li, 2001). Under higher investor protection levels, banks may prefer superior financial stability, and

Table 3
Descriptive statistics for firm characteristics.

	Mean
Independent	0.71
Diversity	0.099
	Frequency
Expertise	68.6%

Independent, percentage of independent directors on the board. *Diversity*, percentage of female directors on the board. *Expertise*, dummy variable that identifies if a member of the audit committee is a financial and accounting expert.

Table 4
Factorial analysis for firm characteristics.

	Board
Independence	0.793
Diversity	0.669
Expertise	0.580
Variance accounted for = 74.08%	
Kaiser–Meyer–Olkin (KMO)measure of simple suitability	0.535
Bartlett test of sphericity (chi-square)	123.635
p-value	0.000

therefore they prefer forward-looking loan loss provisioning, which is at odds with the incurred loss approach of IAS 39. Thus, banks may have incentives to recognize higher loan loss provisions, i.e., to smooth income to a larger extent, even after IFRS adoption (Gebhardt & Novotny-Farkas, 2011). Therefore, it is necessary to isolate the effect of investor protection on this previous relationship by analyzing its substitution or complementary roles.

The indicator *IP* represents the level of investor protection by country. It quantifies the explicit protection awarded to shareholders and creditors for fraud and bankruptcy as well as the quality of law enforcement. La Porta, Lopez-de-Silanes, Shleifer, and Vishny (2000), among others, postulate that investor protection should be defined by tradition and the existence of laws that guarantee investors' interests and the characteristics of the judicial institutions to ensure their implementation and enforcement, as the legal reinforcement of the rules and laws has the power to stop, or at least limit, the expropriation of investors. Therefore, following studies such as Leuz et al. (2003), *IP*, which captures a country's legal environment in protecting investor rights, consists of various indicators. These represent the tradition of the legal systems of each country (*Com_Law*), legal mechanisms of investor protection (*Anti_Dir*), and three legal system parameters: the efficiency index of the judicial system (*EJS*), law and order index (*RL*), and corruption index (*Corrup*).

The first variable of investor protection, *Com_Law*, is the legal tradition and this is coded by a dummy variable that takes a value of one for countries with a common-law legal tradition and a value of zero otherwise. At a second level, investor protection is the commercial law and, particularly, the legal mechanisms that protect investors by mitigating the agency problems that may occur. La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1998) develop an anti-director rights index based on the presence/absence of six specific elements of investor protection. Specifically, *Anti_Dir* uses six values to measure the ease with which investors can exercise their rights against opportunistic behavior.

The third level of protection is based on the existence of other legal system parameters such as mechanisms for monitoring compliance with existing regulations, because this can mitigate the company's ethical problems. In this sense, Durnev, Morck, and Yeung (2004) observe that the strength of the control mechanisms of compliance is more efficient than the mere existence of a comprehensive set of laws governing the same. To reflect the mechanisms of law enforcement, we use the three indexes proposed by La Porta et al. (1998) to assess the legal framework of a country: (i) the level of efficiency of the judiciary, (ii) the law and order index, and (iii) an index of the quality of accounting standards. The judicial efficiency index (*EJS*) identifies the independence and professionalism of the judiciary in all types of processes and the temporal adequacy of processes, especially regarding the reasonableness of the delay. The law and order index, *RL*, is related to the generality and non-arbitrariness of the rules, their comprehensiveness, equity, and so on. The compliance of both control

Table 5
Institutional environment: investor protection.

	Com_Law	*Anti_Dir*	*EJS*	*TL*	*Corrup*
Canada	1.00	5.00	9.25	10.00	10.00
France	0.00	3.00	8.00	8.98	9.05
Germany	0.00	1.00	9.00	9.23	8.93
Italy	0.00	1.00	6.75	8.33	6.13
The Netherlands	0.00	2.00	10.00	10.00	10.00
Spain	0.00	4.00	6.25	7.80	7.38
Sweden	0.00	3.00	10.00	10.00	10.00
UK	1.00	5.00	10.00	8.57	9.10
USA	1.00	5.00	10.00	10.00	8.63

Com_Law is the legal tradition and is coded by a dummy variable that takes value one for countries with a common-law legal tradition, taking value 0 otherwise.
Anti_Dir takes six values to measure the ease with which investors can exercise their rights against opportunistic behavior.
Legal enforcement is defined by these three indexes: EJS is the index of efficiency of the judicial system; L measures the assessment of the rule of law; and Corrup represents the corruption index.

Table 6
Factorial analysis for investor protection.

	IP
Com_Law	0.891
Anti-Dir	0.833
EJS	0.928
RL	0.703
Corrup	0.762
Variance accounted for = 68.48%	
KMO Measure of simple suitability	0.589
Bartlett test of sphericity (chi-square)	64.784
p-value	0.000

mechanisms is the true determinant of protecting the rights of investors because they determine the liability of the managers and administrators of companies (La Porta et al., 1998). Finally, the corruption index *Corrup* deals with the government's stance toward business and identifies corruption in government. It is an index ranging from zero to ten representing the average of an investor's assessments of corruption in the government in each country. Lower values of this index identify higher corruption problems.

Table 5 shows the values per country of investor protection. Taking into account the three aspects considered to measure the level of investor protection, Canada, the UK, and the USA are the common-law countries which are characterized by less reliance on the statutes and preference for contracts and private litigation to resolve disputes. With respect to Antidirector rights, Canada, the UK, and the USA are at the head of the list in combating discretional behavior and Belgium is the worst country in this aspect. Likewise, Sweden and the Netherlands head the list in the score of legal enforcement and public enforcement indices.

Finally, with the aim of obtaining the *IP* variable, we conduct a factorial analysis to add the information of previous indicators. The results are summarized in Table 6. The Kaiser–Meyer–Olkin measure of sample suitability is 0.589, higher than 0.5, and the Bartlett test of sphericity is significant at the 99% confidence level, meaning that the results obtained provide an adequate basis for the empirical examination of the factorial analysis (Hair et al., 1998).

The only factor obtained (i.e., *IP*) explains 68.48% of the variance of the five indicators that represent the level of investor protection: *Com_Law*, *Anti_Dir*, *EJS*, *RL*, and *Corrup*. The effects of each indicator in the final factor are listed in the first part of the table. *EJS* (0.928), which represents the efficiency of the judiciary index, is the indicator with the highest effect, followed by the *Com_Law* (0.891) and *Anti_Dir* (0.833). The last two indicators, the index of law and order in the country (*RL*) and the index of government corruption (*Corrup*), have charges above 0.7, as can be seen in Table 5.

3.3.2. Earnings' ability to predict future cash flow (EBTLLP)

We have considered earnings ability to predict future cash flow because investors consider cash flow to be more value relevant than profitability disclosures, being predicting cash flows important for liquidity and solvency analysis.

Following Kanagaretnam et al. (2014), we measure earnings' ability to predict future cash flows as the coefficient from a regression of one-period-ahead earnings before taxes and loan loss provisions on current period net income before taxes. Equation (4) is composed of the regressions to investigate the effect of MA on this earnings quality measure, in which higher and positive values for ϖ_1 and $\varpi 3$ imply higher earnings' ability to predict future cash flows:

$$\begin{aligned} EBTLLP_{t+1} = {} & \varpi_0 + \varpi_1 EBT_t + \varpi_2 MA + \varpi_3 MA * EBT_t + \varpi_4 SIZE \\ & + \varpi_5 SIZE * EBT_t + \varpi_6 DEPOSIT + \varpi_7 LOANTYPE \\ & + \varpi_8 LOANGROWTH + {}_{\varrho} F_k + \gamma C_k + YEAR + \varepsilon i, k \end{aligned} \quad (4)$$

3.4. Accounting conservatism model in banking industry

Basu (1997) defines conditional accounting conservatism as the asymmetric recognition speed of good and bad news in earnings. Conservatism reduces agency problems related to managerial investment decisions, mitigates managerial opportunism, and enables good debt agreements in an asymmetric information environment (Ahmed & Duellman, 2007; Ball & Shivakumar, 2005; García Lara et al., 2009; Leventis et al., 2013). With respect to debt agreements, Ball and Shivakumar (2005) suggest that timely loss recognition is linked to the efficiency of the debt agreement by affecting both ex ante loan pricing and ex post violation of covenants based on financial statement variables (Choi, 2007).

The FASB in its Statement of Financial Accounting Concepts No. 2 (SFAC 2) defined conservatism as "a prudent reaction to uncertainty to try to ensure that uncertainty and risks inherent in business situations are adequately considered." In this respect, our principle of conservatism in banks is based on the existence of higher verification standards to recognize good news rather than bad news (Basu, 1997). In this industry, asymmetric timeliness of recognition of earnings declines versus gains in accounting income and the timely recognition of losses is critical because of the importance of exposure to losses from various types of risks as well as capital adequacy regulations, which relate to the ability of a bank to absorb losses and remain solvent for depositors (Kanagaretnam et al., 2014).

Several papers have sought to find an association between governance and conservatism. Most of them support the assumption that effective corporate governance related to board independence or better governance levels promote the adoption of accounting conservatism (Ahmed & Duellman, 2007; Beekes et al., 2004; García Lara et al., 2009; Lim, 2011).

Our model for testing accounting conservatism uses aggregate earnings and follows Ball and Shivakumar (2005) and Kanagaretnam et al. (2014).

$$\Delta NI_t = \alpha_0 + \alpha_1 D\Delta NI_{t-1} + \alpha_2 \Delta NI_{t-1} + \alpha_3 \Delta NI_{t-1} * D\Delta NI_{t-1} + \alpha_4 MA + \alpha_5 MA * D\Delta NI_{t-1} + \alpha_6 MA * \Delta NI_{t-1} + \alpha_7 MA * \Delta NI_{t-1} * D\Delta NI_{t-1} + \alpha_8 SIZE + \alpha_9 SIZE * D\Delta NI_{t-1} + \alpha_{10} SIZE * \Delta NI_{t-1} + \alpha_{11} SIZE * \Delta NI_{t-1} * D\Delta NI_{t-1} + \varrho F_k + \gamma C_k + YEAR + \varepsilon_{i,k} \quad (5)$$

where *ΔNIt* denotes the change in net income from year *t* - 1 to *t*, scaled by total assets at the end of *t*−1, and *ΔNIt-1*, the prior period change in earnings. *DΔNIt-1* denotes an indicator variable that equals 1 if *ΔNIt-1* is negative and 0 otherwise. *MA* represents managerial ability.

Economic gains must meet a higher verification threshold to be recognized in accounting income, so earnings increases are likely to be less timely and more persistent, implying that $\alpha 2$ should be positive. Timely loss recognition gives rise to more large negative transitory items than positive transitory items, so $\alpha 3$ is expected to be more negative for firms practicing more timely loss recognition. Consequently, our main predictions are that banks with managers with higher ability will have more conservative accounting. Specifically, we predict that the coefficient $\alpha 7$ on *MA*ΔNIt-1*DΔNIt-1* on equation (5) will be negative.

The model also controls for the effects of differences in size on the estimated auto-regressive relations, represented by the logarithm of the bank's total assets at book value. Additionally, equations include several firm- and country-level variables (*Fk* and *Ck*) to isolate the effect of managerial abilities from the effects of other firm and country characteristics, and year indicators (*YEAR*) to control for year-fixed effects. We estimate the model with robust standard errors clustered by country and bank to correct for heteroskedasticity and serial dependence (Petersen 2009).

Both earnings quality and conservatism models are empirically estimated by using ordinary least squares (OLS). We adjust the standard errors for heteroskedasticity, and serial and cross-sectional correlation using a two-dimensional cluster at the firm and year level. This technique is proposed by Petersen (2009) as the preferred method for estimating standard errors in accounting and finance applications using panel data. Moreover, in order to control endogeneity problems, in our case, bank earnings quality/conservatism can be explained by the managerial abilities and bank structure characteristics; but similarly, such variables could be explained simultaneously by the level of bank earnings quality/conservatism. We have used the lag *t*-1 of these variables.

Table 7
Descriptive statistics.

	Mean	Standard deviation
ΔNI*t*	0.002	0.009
ΔNI*t-1*	0.001	0.007
EBTt+1	0.007	0.074
EBTt	0.006	0.070
MA	0.798	0.026
Size	9.97	2.79
Deposit	0.69	0.18
LoanGrowth	0.02	0.07
	Frequency	
DΔNIt-1	34.2%	

ΔNI_t denotes the change in net income from year *t* - 1 to *t*, scaled by total assets at the end of *t*−1. ΔNI_{t-1}, the prior period change in earnings. $D\Delta NI_{t-1}$ denotes an indicator variable that equals 1 if ΔNI_{t-1} is negative and 0 otherwise. EBT_{t+1}, future period earnings defined as net income before income taxes. EBT_t, current earnings. *MA*, the managerial ability measure by the residual of Eq. (2). *Size*, logarithm of total bank assets at book value. *Deposit* is deposits scaled by total assets at the beginning of the year. *Loans Growth*, the difference between a bank's loan growth rate and the median loan growth rate of all banks from the same country and year.

4. Empirical results

4.1. Descriptive analysis

Table 7 shows the descriptive statistics of variables proposed for the analysis: dependent variables (ΔNI*t and EBTt*+1); independent variable (ΔNI*t-1*, *EBTt*, *and MA*); and control variables (*Size*, *Deposit, and LoansGrowth*). We can see that the mean change in income is 0.2% of total assets and, on average, 34.2% of the sample banks report a decline in earnings. Earnings persistence is around 0.7%. The mean value of the logarithm of total assets at book value is 9.97 and loans are growth 2%, on average. Finally, the mean value of deposits is 69% of total assets.

Table 8 shows the bivariate correlation matrix between variables used in previous models. In general, values are not very high, although all of them are statistically relevant, except for those independent variables defined through lagged independent variables.

4.2. Basic models for earnings quality and accounting conservatism

Table 9 reports the results of our equations (3) and (4) in order to estimate the effects of managerial ability on banks' earnings quality. In Panel A, we can observe that current EBT impacts positively and significantly on future EBT at the 1% level, consistent with the results reported in prior studies (i.e., Kanagaretnam et al., 2014). Of primary interest is ϖ_3, the coefficient on the interaction variable MA*EBT*t*, which has a positive effect that indicates higher earnings persistence in banks with higher managerial ability.

Consistent with our prediction, after controlling for the bank-specific and country-specific institutional controls in the regression analysis, we find that ϖ_3 is positive and significant at 99% confidence level, indicating strong support for the hypothesis that a bank with best managers enhances earnings persistence. Therefore, hypothesis H1 is supported for earnings quality. From the practical point of view, current EBT explains future EBT at 76.40% ($\varpi_1 = 0.764$) and this effect increases 2.7% in banks with higher managerial ability ($\varpi_3 = 0.027$).

Panel B of Table 9 shows results for the cash flow predictability test. All the models show that future cash flow is positively and significantly associated with EBT, consistent with the finding by Altamuro and Beatty (2010). More importantly, after controlling for the bank-specific and country-specific institutional controls, the coefficient on the interaction term ϖ_3 is positive and significant at the 1% level. This evidence is again consistent with our prediction in hypothesis H1.

Table 10 reports the results of our equation (5) in order to estimate the effects of managerial ability on bank conservatism. As expected, the coefficient on ΔNIt-1* DΔNIt-1 ($\alpha 3$) is negative and significant, indicating that banks are timelier in reporting earnings declines compared with reporting earnings increases, as Kanagaretnam et al. (2014) showed. Our main predictions are that banks with managers that show higher ability will report earnings more conservatively. Consistent with our prediction, the coefficient on MA*ΔNIt-1*DΔNIt-1 ($\alpha 7$) is negative and significant at the 1% level, indicating lower differential timeliness of recognizing earnings declines versus gains in banks with higher managerial ability. These results provide support for our prediction of hypothesis H2 for accounting conservatism.

Table 8
Bivariate correlations.

		1	2	3	4	5	6	7
1	ΔNI_t							
2	ΔNI_{t-1}	−0.856**						
3	$D\Delta NI_{t-1}$	0.068	−0.086*					
4	EBT_{t+1}	−0.910**	0.896**	−0.05				
5	EBT_t	−0.740	0.729	−0.727	−0.852			
6	MA	−0.008	0.247**	−0.008	−0.009	0.028		
7	Size	−0.079*	−0.079	0.061	0.150**	−0.053	0.010	
8	Board	−0.005	−0.001	−0.005	−0.003	−0.006	−0.002	−0.055
9	IP	0.009	−0.039	−0.070*	−0.007	−0.041	0.031	−0.098**
10	Deposit	0.017	−0.007	0.01	−0.160**	−0.052	0.072*	−0.452**
11	LoanType	−0.014	−0.014	−0.108**	0.031	−0.092*	−0.003	−0.164**
12	LoanGrowth	−0.011	0.016	−0.036	0.016	−0.084*	0.075*	−0.064

		8	9	10	11
8	Board				
9	IP	0.156**			
10	Deposit	0.013	0.132**		
11	LoanType	−0.034	0.243**	0.072*	
12	LoanGrowth	−0.043	−0.008	0.014	0.370**

*$p < 0.05$.
**$p < 0.01$.
ΔNI_t denotes the change in net income from year t - 1 to t, scaled by total assets at the end of t−1. ΔNI_{t-1}, the prior period change in earnings. $D\Delta NI_{t-1}$ denotes an indicator variable that equals 1 if ΔNI_{t-1} is negative and 0 otherwise. EBT_{t+1}, future period earnings defined as net income before income taxes. EBT_t, current earnings. *MA*, the managerial ability measure by the residual of Eq. (2). *Size*, logarithm of total bank assets at book value. *Board*, the level of independence, diversity, and expertise of the board of directors. *IP*, the level of bank's country investor protection. *Deposit* is deposits scaled by total assets at the beginning of the year. *Loans Growth*, the difference between a bank's loan growth rate and the median loan growth rate of all banks from the same country and year.

Table 9
Explanatory models for earnings quality.

	Predicted sign[a]		PANEL A				PANEL B			
			Earnings persistence (EBT_{t+1})				Earnings ability to predicted future cash flow ($EBTLLP_{t+1}$)			
			Coefficient	Std. Error.	z	p-value	Coefficient	Std. Error.	z	p-value
EBT	ϖ1	+	0.764	0.252	3.030	0.002	0.220	0.110	2.000	0.046
MA	ϖ2	¿?	1.107	3.418	0.320	0.746	0.601	1.526	0.390	0.694
MA*EBT	ϖ3	+	0.027	0.004	6.880	0.000	0.010	0.002	6.000	0.000
Size	ϖ4	¿?	1.846	0.252	7.310	0.000	0.924	0.111	8.290	0.000
Size*EBT	ϖ5	¿?	0.603	0.269	2.240	0.025	0.016	0.006	2.690	0.007
Deposit	ϖ6	¿?	2.207	0.305	7.240	0.000	1.105	0.135	8.180	0.000
LoansType	ϖ7	¿?	−0.001	0.099	−0.010	0.993	−0.013	0.039	−0.340	0.735
LoansGrowth	ϖ8	¿?	−0.016	0.017	−0.920	0.359	−0.002	0.008	−0.260	0.791
Board	Ω1	¿?	0.010	0.014	0.730	0.467	0.006	0.005	1.130	0.259
IP	γ1	¿?	0.019	0.016	1.200	0.229	0.170	0.118	1.440	0.149
Sigma_u			1187.608				349.953			
Sigma_e			1334.701				636.720			
Rho			0.442				0.232			
Wald test			117.50 (0.000)				118.85 (0.000)			

In order to avoid endogeneity problems for managerial abilities and bank structure characteristics, we have used their lags t-1 as instruments.
All models included control dummy variables for year and country.
EBT_{t+1} denotes future period earnings defined as net income before income taxes. $EBTLLP_{t+1}$, one-period-ahead earnings before taxes and loan loss provisions. EBT_t, current earnings. *MA*, the managerial ability measure by the residual of Eq. (2). *Size*, logarithm of total bank assets at book value. *Deposit* is deposits scaled by total assets at the beginning of the year. *LoanType*, categorical variable represents different loans categories. *Loans Growth*, the difference between a bank's loan growth rate and the median loan growth rate of all banks from the same country and year. *Board*, the level of independence, diversity, and expertise of the board of directors. *IP*, the level of bank's country investor protection.
[a] We adopt the ϖ numeration of Eqs. (3) and (4).

4.3. Robust analysis

To provide robustness to our results, we make two changes to our earlier models. For the first, we use loan loss provisions and loan loss allowance (LLA) as alternative measures of accounting conservatism and earnings quality. Loan loss provisioning is a key accounting choice that significantly influences banks' reported earnings (Gebhardt & Novotny-Farkas, 2011). Second, we proceed to make a breakdown of the main countries to check whether the managerial ability holds for the various bank environments.

We use loan loss provision as a conservative accounting measure because changes in nonperforming loans represent exogenous and relatively nondiscretionary indicators of possible future credit losses.

Following Craig Nichols et al. (2009), we define the following equation (6) which – after controlling for potentially confounding differences in bank size, type of loans outstanding, lagged loan loss allowance, and net loan charge-offs – allows us to assess how

Table 10
Explanatory models for conservatism.

	Predicted sign[a]		Coefficient	Std. Error.	*t*	*p*-value
$D\Delta NI_{t-1}$	α1	¿?	−0.040	0.004	−10.420	0.000
ΔNI_{t-1}	α2	+	0.025	0.011	2.290	0.022
ΔNI_{t-1}*$D\Delta NI_{t-1}$	α3	−	−0.001	0.000	−17.240	0.000
MA	α4	¿?	0.897	0.463	1.940	0.053
MA*$D\Delta NI_{t-1}$	α5	¿?	0.031	0.003	10.150	0.000
MA*ΔNI_{t-1}	α6	+	0.076	0.006	11.640	0.000
MA*ΔNI_{t-1}*$D\Delta NI_{t-1}$	α7	−	−0.061	0.005	−11.700	0.000
Size	α8	¿?	0.687	0.367	1.870	0.061
SIZE*$D\Delta NI_{t-1}$	α9	¿?	0.682	0.574	1.190	0.235
SIZE*ΔNI_{t-1}	α10	+	0.000	0.067	0.000	0.997
SIZE*ΔNI_{t-1}*$D\Delta NI_{t-1}$	α11	−	−0.004	0.005	−0.660	0.507
Board	Ω1	¿?	−0.006	0.009	−0.730	0.464
IP	γ1	¿?	−0.844	0.720	−1.170	0.241
Sigma_u			6.525			
Sigma_e			20.127			
Rho			0.195			
Wald test			13546.04 (0.000)			

In order to avoid endogeneity problems for managerial abilities and bank structure characteristics, we have used their lags *t*-1 as instruments.
All models included control dummy variables for year and country.
ΔNI_t denotes the change in net income from year *t* - 1 to *t*, scaled by total assets at the end of *t*−1. ΔNI_{t-1}, the prior period change in earnings. $D\Delta NI_{t-1}$ denotes an indicator variable that equals 1 if ΔNI_{t-1} is negative and 0 otherwise. EBT_{t+1}, future period earnings defined as net income before income taxes. *MA*, the managerial ability measure by the residual of equation (2). *Size*, logarithm of total bank assets at book value. *Board,* the level of independence, diversity, and expertise of the board of directors. *IP*, the level of bank's country investor protection. *IP* represents the investor protection environment of banks' country of origin.
[a] We adopt the α numeration of equation (5).

managerial ability affects the timeliness of accounting recognition of economic losses

$$LLP_t = \Psi_0 + \Psi_1\Delta NPL_{t-1} + \Psi_2\Delta NPL_t + \Psi_3\Delta NPL_{t+1} + \Psi_4 NCO_t + \Psi_5 NCO_{t+1} + \Psi_6 MA + \Psi_7 MA^*\Delta NPL_{t-1} + \Psi_8 MA^*\Delta NPL_t + \Psi_9 MA^*\Delta NPL_{t+1} + \Psi_{10} MA^* NCO_t + \Psi_{11} MA^* NCO_{t+1} + \Psi_{12} SIZE + \Psi_{13} SIZE^*\Delta NPL_{t-1} + \Psi_{14} SIZE^*\Delta NPL_t + \Psi_{15} SIZE^*\Delta NPL_{t+1} + \Psi_{16} SIZE^* NCO_t + \Psi_{17} SIZE^* NCO_{t+1} + \Psi_{18} LLA + \Psi_{19} DEPOSIT + \Psi_{20} LOANTYPE + \Psi_{21} LOANGROWTH + \Omega F_k + \gamma C_k + YEAR + \varepsilon_{i,k} \quad (6)$$

Loan loss provisions in year *t* reflect expectations of loan losses based on information about loans that became delinquent during the previous year (*ΔNPLt-1*) or the current year (*ΔNPLt*), or that are expected to become delinquent in the future (*ΔNPLt+1*). Loan loss provisions also relate to loan charge-offs or loss realizations during the current year (*NCOt*) and future years (*NCOt+1*). We therefore expect positive coefficients on these five variables. However, the relationship between culture, LLP, and NCO may not be as strong as the relationship between MA, LLP, and ΔNPL due to managers also having discretion in the timing of loan charge-offs.

To know whether banks with higher managerial ability recognize larger or timelier loan loss provisions relative to changes in nonperforming loans, we interact these five variables with MA. Hence, we expect the interaction coefficients to be positive.

We include *DEPOSIT*, *LOANTYPE*, and *LOANGROWTH* to control for the effects of differences in type of loans, and loan growth on loan loss provisions.

We report the results of equation (6) in Panel A of Table 11. The positive and significant coefficients on *ΔNPLt-1*, *ΔNPLt,* and *ΔNPLt-1* imply that, in general, banks recognize loan loss provisions in a timelier manner relative to changes in nonperforming loans, which indicates some degree of accounting conservatism. Consistent with our predictions, the coefficients on *MA*ΔNPLt-1*, *MA*ΔNPLt,* and *MA*ΔNPLt+1* are both positive and significant, indicating that banks with directors with higher managerial ability recognize larger and timelier loan loss provisions than other banks. Moreover, the coefficients at NCO_t and NCO_{t+1}, and their interactions with MA are significantly positive, although not as strong as the previous variables for earnings changes, as we predicted.

Following Kanagaretnam et al. (2014), we now turn to the balance sheet and predict that banks with managers with higher ability recognize larger loan loss allowances than other banks by the following loan loss allowance equation:

$$LLA_t = \varphi_0 + \varphi_1 MA + \varphi_2 NPL_t + \varphi_3 SIZE_t + \varphi_4 DEPOSIT_t + \varphi_5 LOANTYPE_t + \varphi_6 LOANGROWTH_t + \Omega F_k + \gamma C_k + YEAR + \varepsilon_{i,k} \quad (7)$$

We expected φ1 to be positive on *LLA*, which denotes loan loss allowance for year *t* divided by loans for year *t*. As in previous models, we control for the effects of differences in type of loans, loan growth, and nonperforming loans on expected loan loss allowance across banks. We report the results in Panel B of Table 11. As predicted, the coefficient on *MA is* significantly positive, reinforcing our previous results.

Country environments or institutional factors are important in explaining the accounting practices of banks and other material decision so it is necessary to analyze this impact in depth. Accordingly, we consider USA scenario due to the small number of banks observations in the other countries preclude the estimation of regressions of each country. In this sense, and as with managerial ability, Equations (3)–(5) should be estimated by country. In Table 12, it can be seen that when making the distinction of the USA environment, the evidence obtained remains consistent with the results achieved in the global basic model.

5. Concluding remarks

This paper documents that bank earnings quality and accounting conservatism vary among individual managers and is the first piece of empirical evidence to investigate this association in the international financial industry. Previous literature in the area of accounting quality has largely focused on firm characteristics, largely ignoring the effect of managerial skills. These managerial abilities are even more important in the bank industry due to the

Table 11
Robust models for earnings quality measures and conservatism.

Panel A. Loan loss provision (LLP)						
	Predicted sign[a]		**Coefficient**	**Std. Error.**	***t***	***p*-value**
ΔNPLt-1	Ш1	+	0.167	0.032	5.180	0.000
ΔNPLt	Ш2	+	0.035	0.008	4.150	0.000
ΔNPLt+1	Ш3	+	0.035	0.019	1.880	0.061
NCOt	Ш4	+	0.000	0.000	13.700	0.000
NCOt+1	Ш5	+	0.001	0.000	14.600	0.000
MA	Ш6	¿?	−0.542	1.265	−0.430	0.668
MA*ΔNPLt-1	Ш7	+	0.208	0.041	5.110	0.000
MA*ΔNPLt	Ш8	+	0.022	0.009	2.500	0.012
MA*ΔNPLt+1	Ш9	+	0.002	0.000	10.600	0.000
MA*NCOt	Ш10	+	1.144	0.307	3.730	0.000
MA*NCOt+1	Ш11	+	0.000	0.001	15.500	0.000
SIZE	Ш12	¿?	−0.001	0.013	−0.090	0.931
SIZE*ΔNPLt-1	Ш13	+	0.000	0.000	0.840	0.399
SIZE*ΔNPLt	Ш14	+	0.037	0.024	1.550	0.121
SIZE*ΔNPLt+1	Ш15	+	0.000	0.000	1.470	0.142
SIZE*NCO t	Ш16	+	0.000	0.000	−0.130	0.896
SIZE*NCOt+1	Ш17	+	0.000	0.000	0.030	0.978
LLA	Ш18	¿?	0.000	0.000	−0.190	0.849
DEPOSIT	Ш19	¿?	−0.275	0.627	−0.440	0.660
LOANTYPE	Ш20	¿?	−0.369	0.650	−0.570	0.570
LOANGROWTH	Ш21	¿?	0.085	0.077	1.110	0.267
Board	Ω1	¿?	0.058	0.108	0.540	0.589
IP	γ1	¿?	0.591	1.038	0.570	0.569
Sigma_u			56.810			
Sigma_e			15.539			
Rho			0.930			
Wald test			3096.09 (0.000)			
Panel B. Loan loss allowance (LLA)						
	Predicted sign[a]		**Coefficient**	**Std. Error.**	***t***	***p*-value**
MA	ч1	+	0.212	0.028	7.640	0.000
Size	ч2	¿?	−0.050	0.022	−2.310	0.021
Deposit	ч3	¿?	0.000	0.008	−0.020	0.981
LoanType	ч4	¿?	0.063	0.020	3.100	0.002
LoanGrowth	ч5	¿?	0.003	0.000	7.690	0.000
NPL	ч6	¿?	0.000	0.000	−1.050	0.293
Board	Ω1	¿?	0.000	0.001	0.350	0.726
IP	γ1	¿?	0.002	0.001	1.520	0.127
Sigma_u			1127.068			
Sigma_e			1247.958			
Rho			0.449			
Wald test			135.17 (0.000)			

In order to avoid endogeneity problems for managerial abilities and bank structure characteristics, we have used their lags *t*-1 as instruments.
All models included control dummy variables for year and country.
LLPt, contemporaneous loan loss provision. *ΔNPLt-1*, loans that became delinquent during the previous year. *ΔNPLt*, loans that became delinquent during the current year. *ΔNPLt+1*, loans that are expected to become delinquent in the future. *NCOt*, loan charge-offs or loss realizations during the current year. *NCOt+1*, loan charge-offs or loss realizations during future years. *LLAt*, denotes loan loss allowance for year *t* divided by loans for year *t*. *LCOt*, denotes loan charge-offs for current year divided by total loans at the end of previous year. *MA*, the managerial ability measure by the residual of Eq. (2). *Size*, logarithm of total bank assets at book value. *Deposit* is deposits scaled by total assets at the beginning of the year. *LoanType*, categorical variable represents different loans categories. *Loans Growth*, the difference between a bank's loan growth rate and the median loan growth rate of all banks from the same country and year. *Board*, the level of independence, diversity, and expertise of the board of directors. *IP* represents the investor protection environment of banks' country of origin.
[a] We adopt the Ш, ч, ↑ numeration of equations (6)–(8), respectively.

large informational asymmetries, opaqueness, and complexities of this sector.

Using an international sample of banks from nine countries and two alternative measures of earnings quality (earnings persistence and earnings ability to predict cash flow), we find that more able managers lead to higher bank earnings quality. In addition, we find that capable managers lead to superior bank-accounting conservatism. Our results are robust to alternative measures such as loan loss provisions and loan loss allowance.

The results confirm that managerial abilities play an important role in shaping the quality of financial reporting in banks, and that capable bank managers are less likely to manage earnings opportunistically to meet bank short-term earnings benchmarks. Overall, these results add to our understanding of the determinants of bank financial reporting quality, noting that the accounting decisions managers make to achieve bank financial reporting aims can have consequences on accounting choices and therefore influence earnings quality and accounting conservatism in financial firms.

This study is timely and relevant given the recent emphasis on earnings quality of banks over the last few years and the criticisms of managerial abilities after the financial crisis. Investigating the effects of managerial abilities on corporate policies, including accounting policies, is important because managers can induce

Table 12
Robust models for USA environment.

PANEL A. Earnings quality										
	Predicted sign[a]		Earnings persistence *(EBTt+1)*				Earnings ability to predicted future cash flow *(EBTLLP t+1)*			
			Coefficient	Std. Error.	*z*	*p*-value	Coefficient	Std. Error.	*z*	*p*-value
EBT	ϖ1	+	0.163	0.026	6.350	0.000	0.203	0.019	10.550	0.000
MA	ϖ2	¿?	2.073	1.614	1.280	0.199	0.017	0.016	1.070	0.283
MA*EBT	ϖ3	+	0.096	0.033	2.900	0.004	7.490	1.177	6.360	0.000
Size	ϖ4	¿?	0.015	0.001	14.650	0.000	0.015	0.001	19.600	0.000
Size*EBT	ϖ5	¿?	0.185	0.022	8.260	0.000	6.043	0.951	6.360	0.000
Deposit	ϖ6	¿?	0.042	0.012	3.650	0.000	0.154	0.031	4.910	0.000
LoansType	ϖ7	¿?	−0.195	0.039	−4.950	0.000	−0.051	0.036	−1.410	0.159
LoansGrowth	ϖ8	¿?	−0.030	0.026	−1.120	0.263	−0.008	0.002	−4.180	0.000
Board	Ω1	¿?	0.017	0.033	0.530	0.599	0.034	0.007	4.790	0.000
IP	γ1	¿?	2.565	1.996	1.280	0.199	0.253	0.024	10.560	0.000

PANEL B. Conservatism						
	Predicted sign[b]		Coefficient	Std. Error.	*t*	*p*-value
DΔNIt-1	α1	¿?	−0.894	0.000	−14.000	0.000
ΔNIt-1	α2	+	2.231	0.030	74.230	0.000
ΔNIt-1*DΔNIt-1	α3	−	−0.319	0.008	−38.170	0.000
MA	α4	¿?	1.921	0,008	231.180	0.000
MA*DΔNIt-1	α5	¿?	0.046	0,002	27.660	0,000
MA*ΔNIt-1	α6	+	0.093	0.001	184.090	0.000
MA*ΔNIt-1*DΔNIt-1	α7	−	−1.427	0.037	−38.840	0.000
Size	α8	¿?	0.040	0.000	1261.200	0.000
SIZE*DΔNIt-1	α9		4.055	0.014	285.390	0.000
SIZE*ΔNIt-1	α10		0.662	0.000	47.000	0.000
SIZE*ΔNIt-1*DΔNIt-1	α11		−66.628	0.296	−224.750	0.000
Board	Ω1		−117.434	0.594	−197.770	0.000
IP	γ1		−0.513	0.008	−63.580	0.000

In order to avoid endogeneity problems for managerial abilities and bank structure characteristics, we have used their lags *t*-1 as instruments.
All models included control dummy variables for year and country.
PANEL A
EBTt+1 denotes future period earnings defined as net income before income taxes. *EBTLLPt+1*, one-period-ahead earnings before taxes and loan loss provisions. *EBTt*, current earnings. *MA*, the managerial ability measure by the residual of equation (2). *Size*, logarithm of total bank assets at book value. *Deposit* is deposits scaled by total assets at the beginning of the year. *LoanType*, categorical variable represents different loans categories. *Loans Growth*, the difference between a bank's loan growth rate and the median loan growth rate of all banks from the same country and year. *Board*, the level of independence, diversity and expertise of the board of directors. *IP*, the level of bank's country investor protection.
PANEL B
ΔNIt denotes the change in net income from year *t* - 1 to *t*, scaled by total assets at the end of *t*−1. *ΔNIt-1*, the prior period change in earnings. *DΔNIt-1* denotes an indicator variable that equals 1 if *ΔNIt-1* is negative and 0 otherwise. *EBTt+1*, future period earnings defined as net income before income taxes. *MA*, the managerial ability measure by the residual of equation (2). *Size*, logarithm of total bank assets at book value. *Board*, the level of independence, diversity and expertise of the board of directors. *IP*, the level of bank's country investor protection. *IP* represents the investor protection environment of banks' country of origin.
[a] We adopt the ϖ numeration of equations (3) and (4).
[b] We adopt the α numeration of equation (5).

decisions that destroy bank value, so affecting a country's economy. Thus, the evidence from this international study can help standard-setters and regulators to better understand banks' business practices and accounting behavior in the light of managerial abilities. However, future research needs to include a higher number of banks per country in order to realize specific analysis for national environment, as well as to improve the earnings quality approach using other measures such us restatements.

This article does not contain any studies with human participants or animals performed by any of the authors.

Conflicts of interests

Author Emma García- Meca declares that she has no conflicts of interests.

Author Isabel-María García- Sánchez declares that she has no conflicts of interests.

ANNEX 1. Data Envelopment Analysis (DEA)

The DEA model solves the following optimization problem for each DMU by varying the weights *u* and *v*. This maximization uses all DMUs in the group and determines the weights that maximize Equation (1) for each DMU relative to other DMUs in the group

$$\max\theta = \frac{u1Deposits + u2Loans + u3Investment + u4IntInco}{v1PPE + v2\ Int + v3Labor + v4IntExp + v5RentalExp} \quad (1)$$

Methodologically, our DEA model is a multiple-input, multiple-output production technology, where inputs $x \in R_+^d$ are used in the production of $y \in R_+^p$ outputs and can be represented by the production set ψ of attainable input–output combinations: $\psi = \{(x,y) \in R_+^{p+d}$: *x* can produce *y*$\}$.

The technology is defined as $L(y) = \{x : (x,y) \in \psi\}$.

The value of the efficiency measure is given by $\theta(x,y) = \|x\| \Big/ \left\|x^f\right\|$

where $\theta\ (x,y) = \min\ \{\ \theta$: $\theta x \in L(y)\}$, $xf \in IsoqL(y) = \{x: x \in L(y), \mu x \in L(y), \mu < 1\}$ is the frontier input.

A bank is considered as technically efficient if the efficiency measure equals one.

Following Charnes, Cooper, and Rhodes (1978), the constant return to scale (CRS) DEA efficiency estimator, θ^{CRS}, is given by $\theta^{CRS} = \min\{\theta: \theta x_i \in L_n^{CRS}(y_i)\}$, where x_i is the d-vector of inputs and y_i is the p-vector of outputs. $L_n^{CRS}(y_i)$ is the piece-wise linear conical hull of the data, defined by $L_n^{CRS}(y_i) = \{x: y_i \leq Y_z, x \geq X_z, z \in R_+^n\}$. Where $Y = (y_1, y_2, \ldots, y_n)$ is a (p x n) matrix of outputs, $X = (x_1, x_2, \ldots, x_n)$ is a (d x n) matrix of inputs and z is an n-vector of non-negative intensity variables.

Following Banker, Charnes, and Cooper (1984), the variable returns to scales (VRS) DEA efficiency estimator is given by the solution of the linear programs $\theta^{VRS} = \min\{\theta: \theta x_i \in L_n^{VRS}(y_i)\}$. $L_n^{VRS}(y_i)$ is the piece-wise linear convex hull envelopment of the observed sample x_n given by $L_n^{VRS}(y_i) = \{x: y_i \leq Y_z, x \geq X_z, \sum_{i=1}^{n} z_i = 1, z \in R_+^n\}$.

According to Simar and Wilson (1999), the safest approach in estimating efficiency, which avoids a possible misspecification, is to use the VRS estimator. Moreover, as a result of advancement in the development of bootstrap techniques (Simar & Wilson, 2000a; 2000b), we have opted for the application of resampling methods and bootstrapping techniques, in accordance with Simar and Wilson (1998). The SW-algorithm is given by the following steps:

1. Transform the input–output vectors using the original efficiency estimates $\{\theta, i = 1, \ldots n\}$ as $(x_i^f, y_i) = (x_i\theta, y_i)$.
2. Generate smoothed resample pseudo-efficiencies γ_i^* as follows

Given the set of estimated efficiencies $\{\theta\}$ use $h = 0.90n^{-1/5} \min\{\sigma_\theta, R_{13}/1.34\}$ to obtain the bandwidth parameter h.

Generate $\{\delta_i^*\}$ by resampling, with replacement, from the empirical distribution $\{\theta\}$ of the estimated efficiencies.

Generate the sequence $\{\delta_i^*\}$ using

$$\delta_i^* \begin{cases} \delta_i^* + h\varepsilon_i^* & \text{if } \delta_i^* + h\varepsilon_i^* \leq 1 \\ 2 - (\delta_i^* + h\varepsilon_i^*) & \text{otherwise} \end{cases}$$

Generate the smoothed pseudo-efficiencies $\{\gamma_i^*\}$ using $\gamma_i^* = \delta_i^* + (\delta_i^* - \delta_i^{*a})/\sqrt{1 + h^2/\sigma^2_\theta}$

3. Let the bootstrap pseudo-data be given by $(x_i^*, y_i^*) = (x_i^f/\gamma_i^*, y_i)$.
4. Estimate the bootstrap efficiencies using the pseudo-data and the linear program $L_n^{VRS}(y_i) = \{x: y_i < Y_z, x > X_z, \sum_{i=1}^{n} z_i = 1, z \in R_+^n\}$ as $\theta^{SW*} = \min\{\theta: y_i < Yz, \theta x_i > X^*z, \sum_{i=1}^{n} z_i = 1, z \in R_+^n\}$.
5. Repeat steps 2–4 B times to create a set of B bank-specific bootstrapped efficiency estimates θ^{SW*b}, i = 1, …, n, b = 1, …B.

The indexes of efficiency were calculated using the VRS estimator with the application of bootstrapping. This procedure avoids the statistical inference problems that linear programming presents. The efficiency is estimated for each year and country and, although there are too few banks in some countries, the bootstrapping process allows us to avoid the problem relating to degrees of freedom, which imply that a small sample size can increase the number of efficient units. Wilson's software package is used for Frontier Efficiency Analysis with R (FEAR) to estimate bootstrapped efficiency.

ANNEX 2. Bank Regulatory Environment

Following de Andres and Vallelado (2008), the characteristics of the bank industry depend on the national characteristics defined by different variables (see Barth, Caprio, & Levine, 2006; Čihák, Demirgüç-Kunt, Feyen, & Levine, 2012): (i) the industry size (*Industry Size*), measured by bank assets over GDP; (ii) bank activity and ownership restrictiveness (*Industry Activity*), measured by the overall degree to which banks are permitted to engage in securities, insurance, and real-estate activities, and the extent to which they can own non-financial firms; (iii) official supervisory power (*Supervisory*), representing whether officials have the authority to take specific actions to prevent and correct problems; (iv) prompt corrective action (*Correction*), measuring whether laws establish predetermined levels of bank solvency that force action by the authorities; and (v) deposit insurance design (*Deposit*), taking the value 1 if it has a limit by person, 2 if the limit is by account, and 3 if it has both limits.

Table 1
Institutional environment: bank industry structure.

	Industry size	Industry activity	Supervisory	Correction	Deposit
Canada	150	1.8	7	0	2
France	132	1.5	8	0	3
Germany	305	1.3	11	0	1
Italy	154	2.5	6	0	1
The Netherlands	408	1.5	8	0	2
Spain	186	1.8	10	3	1
Sweden	127	2.5	6	0	2
UK	352	1.3	12	0	1
USA	65	3	14	5	2

Industry Size represents the bank industry size; ***Industry Activity*** represents the bank activity and ownership restrictiveness; ***Supervisory*** shows the official supervisory power; ***Correction*** is the prompt corrective action; ***Deposit*** represents the deposit insurance design.

These variables have been grouped using a factorial analysis. Results are shown in Table 2 of this appendix. The Kaiser–Meyer–Olkin (KMO) measure of sample suitability is 0.692, higher than 0.5, the minimum variable of suitability, and the Bartlett test of sphericity is significant at a 99% confidence level. This means that results of factorial analysis provide an adequate basis for empirical examination (Hair et al., 1998). Results show one factor, called *Regulation*, which defines the strength of the bank industry characteristics across countries. All of the variables have a positive charge on the factor, except *Industry Size*, which has a negative effect.

Table 2
Factorial analysis for characteristics of banking industry.

	Regulation
Industry Size	−0.914
Industry Activity	0.941
Supervisory	0.634
Correction	0.952
Deposit	0.746
Variance accounted for = 71.72%	
Kaiser–Meyer–Olkin (KMO) measure of simple suitability	0.692
Bartlett test of sphericity (chi-square)	5150.324
p-value	0.000

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